

**INCIDENT NUMBER: 12-E-CBX**

**COUNTY: Kittitas**

**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
Southeast Region  
WILDLAND FIRE INVESTIGATION REPORT**

**FIRE NAME:** Taylor Bridge Fire

**CITATION ISSUED?** No **CITATION NUMBER?** N/A

**LEGAL:** Sub: NE/SE **Section:** 3 **Township:** 19 North **Range:** 16 E ☒ W ☐

**GPS:** Latitude: 47.09'925" Longitude: 120.49'080"

**LANDOWNER:** Burlington Northern Santa Fe Railroad

**INCIDENT DATE:** 08/13/2012 **INCIDENT TIME:** 1320 hrs. (KITCOM) **PROGRAM:** 221

**INITIAL ATTACK/INCIDENT COMMANDER:** Russ Hobbs KCFPDist. 7, Rich Elliot Ellensburg Fire, Dave Brown, WADNR

**INITIAL FIRE INVESTIGATOR:** Bill Steele KCFMO, Gary Margheim WADNR

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**SUMMARY**

On April 30, 2012 the Washington State Department of Transportation awarded the Bristol Bridge Fill Deck Replacement contract #8261 to Conway Construction Company, INC, a Washington State corporation located in Ridgefield, WA. (UBI#601100953).<sup>12</sup>

On August 13, 2012 at approximately 1300 hrs. a wildland fire occurred adjacent to Bristol Bridge<sup>3</sup>, State Highway 10 near the intersection of State Highway 10 and Taylor Road, southeast of Cle Elum, WA in Kittitas County. Washington State Department of Transportation (WSDOT) fill bridge deck replacement construction activity was occurring at the site at the time of the fire's start. The construction activity included a Conway Construction Company, INC employee (Patrick Freeburg) welding and wire brushing steel plates and beams beneath the bridge deck on top of the steel piers and an unidentified Rainier Steel employee cutting steel rebar on top of the bridge deck in the vicinity of pier 8 and 9 throughout the day. The Rainier Steel employee was using a Stihl hot saw with a 14 inch blade to cut the rebar. Subsequent investigation to date determined the fire was human caused and was associated with the cutting and welding activity. The fire's general origin of approximately 40 feet by 40 feet on Burlington Northern Santa Fe Railroad ownership<sup>4</sup> included two specific origins of approximately 5 feet by 5 feet each. The general and specific origins were located in the flashy fuels native to the area consisting of lichen, grasses, forest debris, duff, shrubs and brush on a southern exposed slope approximately 40 feet below the bridge's deck. One point of origin was identified within each of the two specific origins and ferrous metal particles were recovered from these two points of origin by this investigator. A Point of Origin is defined as that point of a fire where the materials were first ignited. Point of origin #2 was located approximately 33 feet 9 inches southeast of the east edge of pier 9. Point of origin #1 was located approximately 32 feet 1 inch south of the west edge of pier 9. The two points of origin were approximately 10 feet apart from one another with point of origin #1 further upslope than point of origin #2.<sup>5</sup>

Pursuant to WAC 332-24-301 (Industrial Restrictions) this bridge deck replacement activity is an industrial operation which may cause a fire to start on or adjacent to forest lands.<sup>6</sup> The construction activity was occurring in "shut down zone" 675 and the Industrial Fire Precaution Level for the day was level 3 (IFPL3).<sup>40</sup> By law the

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Washington State Department of Natural Resources is responsible for monitoring and assessing fire risk and enforcing the IFPL requirements. Industrial Fire Precaution Level 3 specifically prohibits welding or cutting of steel after 1:00 p.m.

According to Paul Wilson, a carpenter and an employee of Conway Construction Company, INC, on August 13 at approximately 1330 hrs he was working at column line 4 under the bridge when he heard another Conway Construction Company, INC employee, Patrick Freeburg yell "FIRE". Freeburg was suspended approximately 20 feet above ground in a man lift. Wilson looked toward Freeburg and noticed an approximately 10'x20' fire in the grass on the river (downhill) side of the bridge.

In a statement Freeburg provided to DNR Law Enforcement Officer Gary Margheim, Freeburg stated at the time he saw the fire he was using an electric wire wheel to remove paint from steel.<sup>6</sup> He said about 5 minutes earlier he heard a power tool he believed was a hot saw operating above him on the bridge deck. He did not know who was operating the hot saw at the time but believed the person was an employee of the subcontractor, Rainier Steel, . Freeburg estimated the fire was approximately 15-20 feet in size when he saw it and believed the fire started at about 1320 hrs.

The resulting fire eventually consumed in excess of 23,000 acres of private, Washington State Department of Natural Resources and United States Bureau of Land Management grass and forest lands. It destroyed approximately 60 homes, damaged approximately 5 homes and destroyed in excess of 200 outbuildings. Multiple witnesses were identified and statements were obtained from those who were willing to provide them.<sup>24</sup>

According to Greg Ross, Conway Construction Company, INC Superintendent for the Bristol Fill Bridge Deck Replacement Contract, there were two previous fires on this construction site believed to have been caused by the construction activity at the time that were extinguished by Conway Construction Company, INC employees using fire extinguishers, shovels and dirt. These fires were never reported to DNR or the local fire district until after this fire's start. WSDOT Inspector Wilberto Otero also reported a fire to me though he mentioned one fire and the time of the fire's occurrence varied from the time given to me by Greg Ross.

### **NOTIFICATION**

August 13, 2012 at approximately 1320 hrs. Kittitas Communications (KITCOM) received a phone call from a witness later identified as Wilberto Otero, Washington State Department of Transportation (WSDOT) who notified them of a wildland fire at the area of the Bristol Bridge (Highway 10) construction site.

August 13, 2012 at approximately 1330 hrs. Central Washington Interagency Communications Center (CWICC) was notified by KITCOM of the wildland fire.

August 13, 2012 at approximately 1500 hrs. I was dispatched to the Taylor Bridge wildland fire as the fire's investigator.

On August 13, 2012 at approximately 1900 hrs. I arrived on the fire to conduct the fire's origin and cause investigation.

**INVESTIGATION**

On August 13, 2012 employees of Conway Construction Company, INC and Rainier Steel, INC were working at the Bristol Fill Bridge Deck Replacement job site on State Route 10, located between mile post 90.06 and mile post 90.22. This site is officially referred to as the Bristol Fill Bridge Deck Replacement<sup>20</sup> construction site by Washington State Department of Transportation employees. On pages 10 and 11 of **The Washington State Department of Transportation Contract Provisions and Plans** under the heading of “**Division 1, General Requirements, Description of Work**” the job site is defined as beginning at “SR 10 MP 90.06 and ending at SR 10 MP 90.22, in Kittitas County” within the WSDOT right of way. (See also the *Vicinity Map and the Paving and Pavement Marking sketch, included.*)<sup>21</sup>

At approximately 1300 hrs. a wildland fire occurred on this job site near the intersection of State Highway 10 and Taylor Road (NE ¼, SE ¼, Section 3 of T19N R16E). The fire started on forest lands owned by Burlington Northern Santa Fe Railway Company south of Highway 10.<sup>22</sup> Pursuant to RCW 76.04.610 the Department of Natural Resources has the duty to protect forested land within a fire protection zone if the owner fails or neglects to provide adequate protection as required. The area was protected by the Department of Natural Resources.<sup>23</sup> The fire was ignited in light flashy fuels consisting of grasses, brush and shrubs at two separate points of origin downslope and approximately 40 feet below and 33 feet south of the Bristol Bridge deck, Highway 10.

As the wildland fire continued to burn, it increased in size and intensity advancing to the east, laterally to the north and south and backing to the west until it eventually crossed Highway 10 east of the Bristol Bridge. Once it crossed Highway 10 it continued to burn to the east, north and south for the next several days. The fire consumed in excess of 23,000 acres of grasslands, forestlands, understory and other fuels. It destroyed in excess of 60 homes, damaged in excess of 5 homes, destroyed in excess of 200 outbuildings and damaged, injured or destroyed personal property including but not limited to vehicles, vessels, farm implements, equipment, crops, stored goods, pets and livestock.<sup>24</sup>

I arrived on the fire on August 13, 2012 at approximately 1900 hrs. Gary Margheim (Law Enforcement Officer), Josh Mattson (Fire Investigator in Training) from the Washington State Department of Natural Resources and Bill Steele (Kittitas County Deputy Fire Marshal) were on site and had encircled what they were told by witnesses was the general origin area of the fire with surveyor tape. I was informed by Gary Margheim and Bill Steele that Margheim and Mattson had obtained two written witness statements from employees of the general contractor, Conway Construction Company, INC. They said the employees mentioned in their statements that they were working on the bridge piers below the bridge deck in the area of piers 8-9 when they first noticed the fire. Margheim told me he asked one employee, Patrick Freeburg, what he was doing immediately prior to the fire. According to Margheim, Freeburg told him he was up on a lift prepping for a weld on pier 8 using an electric powered wire wheel to remove paint from the steel overhead beam. Margheim asked Freeburg if he had welded on pier 8 just before the fire started. Freeburg told him he had not, that he was still removing paint with the wire wheel. Freeburg told Margheim he had to add welds to the underside of the bridge structure at each pier on the south side of the bridge. He said he started at the east end of the bridge earlier that morning and worked his way towards the west end. Freeburg said he had completed the pier 9 welds and moved to pier 8 to prep it for the next weld.<sup>7</sup> He also told Margheim that about 5 minutes prior to seeing the fire he heard a power tool he believed was a hot saw operating above him on the bridge deck.<sup>6</sup> Margheim then led me onto the bridge deck to a point over pier 8, approximately 32 feet above the west edge of the general origin area. I noticed the rebar at this location had been cut to accommodate the placement of a drain box on the bridge deck. I photographed the rebar and the drain box where the construction activity was taking place earlier in the day.<sup>25</sup>

Shortly afterwards I introduced myself to Wilberto (Willy) Otero, a Washington State Department of Transportation inspector who was on site at the time of the fire. Otero was assigned by WSDOT to inspect the Bristol Fill Bridge WSDOT Deck Replacement (WSDOT Contract No. 8261) construction activity. I asked him if he was the only

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inspector on site that day. He told me he was. I asked him if he was on site daily while the construction was taking place. He told me he was and he was on site when the fire started.



Otero stated at approximately 1330 hrs. he heard someone shout “fire” on the job site. He was on Highway 10 on the west end of the bridge’s job site and looked to the east below the bridge. He said he observed a fire burning in the grass and brush below the bridge. He photographed it as it progressed. However, it should be noted he actually called 911 at approximately 1319 hrs. to report the fire and first observed the fire approximately 5 minutes prior to reporting it (approximately 1314 hrs.). He stated the fire was approximately 15 feet in diameter when he called the fire department. See Otero’s written statement and copies of the photos he took of the fire. (See attachment G1-KITTCOM CAD Log and attachment E6 Otero Statement).

*(Picture003.jpg taken by Otero)*

I asked Otero if there were any previous fires on the job site and he told me there was one other fire on the site that the construction crews successfully extinguished a couple of months prior. He told me the fire was small, approximately 4 feet in diameter and the crews extinguished it with fire extinguishers. He told me he did not know who started the fire or how the fire started. He told me the construction crews were cutting steel and welding that day as well. I asked if he or anyone else reported the fire to anyone. He told me he reported it to his supervisor, Kevin Kromm but he did not report it to the Department of Natural Resources or the local fire department. I asked him if he keeps a daily log. He told me he does for each contract he’s working on. I asked him if he was keeping one on this particular contract. He told me he was. I asked if he made a report of the previous fire in his daily log. He told me he didn’t think he did because it didn’t amount to anything. According to Otero the fire was small and was extinguished by members of the crews shortly after it started. I asked him if he said anything to the contractor about the fire. He said he told them that’s not supposed to happen and told them to not let it happen again. I asked Otero if he would provide me with a written statement and he told me he’d have to talk to his supervisor prior to answering whether he would or not. I asked him to talk to his supervisor and let me know.

Shortly after my arrival on site and shortly after my initial discussion with Otero, I was approached by Otero and his supervisor Kevin Kromm. I asked Kromm if I could get a statement from Otero regarding what he told me previously and Kromm told me he’d have to wait until he talked to the WSDOT Region Safety and Health Manager, Wayne Frudd before he could answer me. I asked him to contact Frudd and let me know as soon as possible. Kromm told me Otero also took pictures of the fire with his cell phone when he learned about it. I told Kromm I’d like to get copies of those pictures as well. He said he’d include that in the discussion with Frudd. I told Kromm if it’s necessary I could go through a public disclosure process or obtain a subpoena if that would make it easier for him. He told me he would prefer to talk to Frudd first then he’d let me know. Frudd was supposed to be on the site the following day, August 14, 2012. I told him I’d meet with them when I returned to the site on the 14<sup>th</sup>.

As mentioned earlier in this report, DNR Law Enforcement Officer Gary Margheim had interviewed and obtained written statements from Paul Wilson and Patrick Freeburg, both employees of Conway Construction Company, INC.<sup>6,8</sup> They were believed to be the first two construction company employees who saw the fire and tried to suppress it. According to his statement, Paul Wilson was a carpenter working for Conway Construction Company,

INC., the general contractor at the Bristol Fill Bridge Deck Replacement construction site. He stated he was working under the bridge when he heard another employee, Patrick Freeburg shout "FIRE"! Freeburg was in a man lift approximately 20 feet above the ground and had been previously using an electric wire wheel to brush old layered paint from the structure where he was welding steel plates onto the pier. Margheim told me that Freeburg told him he had finished welding on pier 9 and had moved west to the next one, pier 8, to remove the paint before welding it when he observed the fire. He said he saw the fire at approximately 1320 hrs. and notified others of it. Approximately 5 minutes prior to seeing the fire he said he had heard someone on the bridge deck above him using a power tool that he believed was a hot saw. Margheim told me Freeburg had said an employee of the subcontractor, Rainier Steel INC was using the hot saw.

In his statement, Wilson said he looked to where Freeburg was pointing and observed an approximately 10' x 20' fire burning in the grass on the river side of his (Freeburg's) man lift. He said Freeburg was about 20 feet in the air in the machine at the time and was very panicked. Wilson ran to the job trailer where he observed Troy Andrew, another Conway Construction Company, INC employee working about 20 minutes prior. He told Troy to call 911 and report the fire with his cell phone. Wilson states he was also going to get whatever fire extinguishers and shovels he could find. He stated he grabbed two shovels but couldn't find the fire extinguishers. He ran the two shovels down to the crew under the bridge and returned to retrieve a personal fire extinguisher from his vehicle. The fire extinguisher was used but did very little good.<sup>8</sup> In the meantime Freeburg lowered himself to the ground and attempted to suppress the fire with a shovel to no avail. Troy Andrew called Greg Ross, the Conway Construction Company, INC Superintendent for the Bristol Fill Bridge Deck Replacement contract to report the fire to him at approximately 1320 hrs. Greg Ross was in Cle Elum getting parts at the time. After reporting the fire to Ross, Troy Andrew then drove the water truck down a service road close to the fire but once there another Conway Construction Company, INC carpenter known to Wilson only as George hooked up a garden hose at the driver's side of the truck to try to suppress the fire but only a trickle of water came out.<sup>8</sup> There is no record on the KITTCOM radio log that Troy Andrew called them to report the fire. The water truck had not been effectively employed on the fire at this time. According to Freeburg's statement, approximately 8 to 10 workers attempted to suppress the fire with dirt and shovels to no avail.<sup>6</sup>

I spoke with Greg Ross on August 13 after I arrived at the fire. Throughout most of my interview with Ross I was accompanied by Gary Margheim and Josh Mattson. Ross told me he received the phone call from Andrew at approximately 1320 hrs. and returned to the job site immediately after talking to him. He said he was not on site but was in Cle Elum getting parts when he received Andrew's phone call. He told me he could not recall how long it took him to arrive on site from Cle Elum after he'd received the call but said when he arrived at the site the water truck was under the bridge but was not spraying water. He told me he jumped into the cab, started the truck, and drove it to a point under the bridge just above the fire. Another individual was standing in the area watching the fire. Without leaving the cab, Ross told the individual to open the front sprayers. Once the sprayers were opened Greg Ross aimed the truck at the fire and the water flowed out of the tank towards the fire. According to Ross, the left sprayer was somewhat effective. It sprayed water onto the fire however the right sprayer was pointed directly at the ground and the water wasn't being sprayed towards the fire. The water in the truck was spent before the fire could be extinguished and the fire regained its size, eventually spreading to the east into the timber adjacent to the bridge.

Later, I talked with Greg Ross and he said at that point the fire was already burning beyond what he thought they could control. I asked him if any of the workers had any training on how to operate the water truck or it's attachments.. He told me he didn't think so. He said the truck is primarily used to water down the roads to keep the dust down. I asked him if he knew how the fire started. He told me "We started it." When I asked how they started it he told me it was probably from the welding or the cutting. He said the crews were welding and cutting just before the fire started. He told me one worker from Rainier Steel INC was on the bridge deck with a Stihl hot saw that had a 14 inch blade cutting rebar and one worker from Conway Construction Company, INC was under the bridge deck at the top of pier 8 brushing old paint off of a steel plate that he needed to weld. According to Ross, Patrick Freeburg, the Conway Construction Company INC worker under the bridge deck was using an electric wire wheel and had just moved to pier 8 from pier 9 after he had finished welding the steel plate at the top of pier 9. He said the Rainier

Steel, Inc. employee was cutting rebar on the bridge deck and Patrick Freeburg, Conway Construction Company, INC employee was welding the plates to the piers when Ross was on site prior to the start of the fire. This would be consistent timing for the cause of this fire. Both activities generate superheated ferrous metal fragments at the points where they are being cut or welded that can be, by the activity, cast into the flashy fuels below those points. The contact between the superheated ferrous metal and the receptive flashy fuels will quite often cause those fuels to ignite and burn undetected away from the points of origin until the fire increases in size and intensity, becoming affected by the available fuels, weather and terrain.

I was told by Greg Ross that the Stihl hot saw belonged to the subcontractor, Rainier Steel INC. When the Rainier Steel INC employees left the site shortly after the fire started, the hot saw was removed from the site as well. Greg Ross told me any future cutting of rebar would be done with hand operated nippers.

I asked Ross if he had any other fires on the site prior to this one. He told me there were two other fires a couple of weeks earlier but members of the Conway Construction Company, INC crew managed to get those extinguished. I asked Ross if he knew who or how the fires started and he told me he couldn't be sure. He said there was welding and steel cutting activity going on at the time. I asked him if he or anyone else reported those fires to the Department of Natural Resources or the local fire department. He told me he didn't and didn't think anyone else had. He wasn't sure if WSDOT Otero did or not. He said the fires were very small and were extinguished with fire extinguishers and shoveled dirt by the company's employees shortly after they started. Ross did not provide a written statement.

A review of WSDOT Kromm's Inspection Notes for the Bristol Fill Bridge Deck Replacement contract revealed Rainier Steel INC arrived on the construction site to begin placing deck steel on August 08, 2012. They remained on site placing the deck steel through August 13, 2012.<sup>26</sup>

I went under the bridge deck to piers 8 and 9 and looked at the top of the piers noting there was evidence of recent welding activity at the joints of the piers and the steel plates. Pier 8 had yet to receive the final weld on the north end of the plate; however, pier 9 and the rest of the piers to the east had what appeared to be the complete set of welds. The plates were welded to the piers in a series of welds. The latest series is the result of a recent WSDOT weld inspection conducted on 08/07/2012 that required additional welds be made to the north edge of the plate on the pier. Freeburg was completing those final welds on August 13, 2012, progressing from pier 16 at the east end of the bridge towards the west end. According to what he'd said to Margheim earlier he had completed the weld on pier 9 and moved his bucket over to pier 8 to remove the layered paint so he could weld pier 8 when the fire was noticed.

It was getting dark so Margheim and I told representatives of each of the contractors (Rainier Steel INC and Conway Construction Company, INC) to stay out of the flagged areas and the area on the Bristol Bridge deck that I had marked previously with spray paint. Greg Ross asked me if they could return to the site to resume work on August 14. I asked him what time he'd be returning and he told me he'd bring the crew in around 0500 hrs. I told him he could resume work outside of those areas I marked previously. He agreed to stay outside of those areas. I also said I'd meet him at the site when he arrived in the morning so we could discuss what activities would be appropriate for the day. Margheim and I already told him the IFPL for the area was at a level 3 which did not allow for cutting or welding of metal after 1300 hrs. or a one hour fire watch after the shutdown occurs. I went on to say I didn't want any cutting or welding done on site at all until I completed my review of the general origin area. Greg Ross agreed to those terms prior to departing for the evening. I made arrangements to return to the site the following morning, August 14, 2012.

I arrived back on the job site at 0500 hrs. on August 14, 2012 as planned. At approximately 0520 hours I located the site of the two fires that were previously started and extinguished. They were located in the flashy fuels along the south edge of the construction road below the bridge deck and south of piers 10 and 11. They were outside of this fire's general origin area and were approximately four feet in size, each. One fire in particular appeared to have been trailed with a shovel. Both fires were approximately 25 feet south of pier 10. After the fires were extinguished the contractor apparently placed a silt barrier fence downhill from where the fires occurred to prevent any possible silt

runoff.<sup>27 28</sup> Josh Mattson met me on site at approximately 0530 hrs. After locating the older fires, Mattson and I began our investigation of the Taylor Bridge fire's progression.

We walked around the general origin several times to determine the fire's directional vectors. In order to determine the fire's directional vectors we reviewed the fire's directional macro and micro burn indicators within the general origin using binoculars from outside of the taped barrier. From that initial review we determined the head of the fire was at the east end of the general origin. We examined the fire's directional macro scale and micro scale burn indicators consisting of angle of char, freezing, white ash, cupping, depth of char, staining, sooting, protection, leaf curl and grass stems in this particular area and determined the fire had advanced from an area within the general origin to the east, increasing in size and intensity, had burned laterally to the north and south and had backed primarily to the west from within the general origin. Subsequent review of the general origin by Mattson and I on August 14 and again by me on August 15 and August 18, 2012 revealed two distinct points of origin and two other points that were initially thought to be origins but later determined to be caused by spotting from the fires at the two primary points of origin. These spot fire's points of origin did not have any evidence within them that would suggest any cause other than a natural cause (spotting). There were no matches, no cigarette butts, no ferrous metals, no firework or explosive remnants, no odors normally associated with accelerants, no evidence of lightning activity, no catalytic converter remnants or carbon particles, no glass or material consistent with magnified ignition and no other evidence of ignition.

On August 14, 2012 (0712 hrs.) and August 15, 2012 (0722 hrs.) I recovered ferrous metals from the specific origin area and from two distinct points of origin. I retained those metals as evidence (See E4, E5, E6 and E7 held in evidence). The ferrous metals appeared to be welding slag and steel shavings that most likely were cast or otherwise fell to the ground from the welding and/or cutting activity taking place on pier 9 and/or Pier 8 at the Bristol Fill Bridge and Deck Replacement construction site immediately adjacent to and above the fire's general origin.

According to one of my conversations with Greg Ross, who was on site prior to the fire's detection but had left to go to Cle Elum for parts before the fire started, cutting and welding activity was occurring simultaneously throughout the morning. Patrick Freeburg was applying the final welds to the piers and plates underneath the bridge deck in response to the WSDOT inspection that morning. Additionally, in a conversation with Margheim, Freeburg told him that he had started on the east end of the bridge and had progressed west to pier 9 where he completed the last weld prior to the fire's detection. Once he noticed the fire he brought it to the attention of Paul Wilson and others. 8-10 employees attempted to suppress the fire with shovels, dirt and water to no avail. I also recovered the same types of ferrous metal from the specific origin area and the general origin. The steel appeared to have been exposed to heat. The samples appeared to be molten and blued and some appeared to be shavings. I recognized these ferrous metals as being consistent with ferrous metals associated with welding and cutting activity.

Based on the fire's directional indicators, as well as information and evidence collected to date, I determined that the fire was human caused and was most likely caused by errant sparks and/or slag from the construction activity that was occurring on the bridge immediately prior to the fire's start. Ferrous metals consistent with steel filings associated with cutting steel and slag associated with welding of steel were recovered from each of the two points of origin as well as portions of the general and the specific origin areas. Both activities, the cutting of steel and the welding of steel, could be the cause of this fire. No other potential causes were found within the two points of origin.

On August 14, 2012 at approximately 0830 hrs. I discussed the fire with David Conway as we stood along Highway 10, west of the bridge deck. Conway wasn't on site the day of the fire's start but he arrived on site later that evening. During our conversation he told me he believed the contractors started the fire. He did not distinguish between whether he believed it was started by Conway Construction Company, INC employees or Rainier Steel INC employees or both. He told me he and his wife own the business adding that they're "small business owners". He said everything he has is invested in Conway Construction Company, INC. He said he felt terrible for those who lost their homes, those who lost everything. He asked me several times what he could do to help. I told him I'd like to interview the Conway Construction Company, INC employees and the Rainier Steel INC employees if he didn't

mind. He told me he'd get them together and bring them over one at a time for interviews, asking me who I'd like to interview first. I told him I'd like to talk to Greg Ross, the Conway Construction Company, INC Superintendent first. Conway told me he'd bring him right over. I assigned Josh Mattson to help me take statements from the employees of both the general contractor and the subcontractor.

On August 14, 2012 at approximately 0845 hrs. while talking to Conway I was approached by an individual who identified himself as Brad Rorem. He just arrived at the west end of the job site. He asked for me by name and told me Gary Margheim had sent him to the job site to talk to me. I identified myself to him as Conway left to find Greg Ross. After Conway left, Rorem told me he observed the fire in its infancy. He told me he and his sons were at their family's cabin (1500 Hart Road) approximately 1/2 mile east of the bridge. Rorem stated they were standing on the southwest corner of the deck of the cabin that overlooks the Yakima River and Highway 10. He said it was approximately 1:00 p.m. and they were watching some rafters float the river below the bridge when he noticed a very small fire burning (south) below the bridge in the grass downslope between the bridge and the railroad tracks. He told me he observed the fire with his naked eye. He did not use binoculars. He said the fire appeared to be closer to the East end of the bridge but fairly close to the middle. He told me none of the workers who were working on the bridge at the time appeared to pay any attention to the fire. He said the fire was equivalent to a campfire for approximately 10 to 15 minutes and he expected the bridge construction crew would tend to it. He told me he eventually saw the fire spread into the grass below the bridge. He said when the fire burned into the trees it began moving rapidly adding that the wind was blowing West-Southwest right into their faces and ash was coming directly at them. Rorem stated within approximately 15 minutes the fire had jumped Highway 10 and was near their cabin. He told me they were forced to immediately evacuate. Rorem said he thought the temperature at the time was approximately 88 to 89 degrees. He told me he didn't see anyone from the construction crew attempt to fight the fire. Josh Mattson obtained a written statement from Rorem.<sup>9</sup> After Rorem gave us his statement he left the area.

Conway and Ross approached a short while later. I asked Ross if he would mind talking to us and giving us a statement regarding what occurred prior to and during the initial stages of the fire. He told me he didn't have a problem talking to me or providing a statement. Conway remained nearby. Josh Mattson was preparing the statement form in preparation for the interview/statement. Conway approached and told me again that he's extremely sorry for all of the damage done by the fire but he said he'd like to get some advice from his attorney before he or anyone else working for him would talk to us. He was apologetic to me about it but he made it clear he didn't want us talking to his employees before he talked to his attorney. I asked Ross if he wanted to talk to me and give me a statement still. He told me he'd prefer to see what the attorney told Conway prior to offering any statement. I told Conway and Ross I understood. Conway apologized again and he and Ross went back to the bridge deck. Mattson and I stayed at the west end of the bridge until Conway returned. He told me his attorney advised him to wait until he (the attorney) could get to the job site. I asked Ross when that might be. He told me it would probably be the next day. I told Conway to give me a call if he wants to talk any more about the fire. I did not have any further contact with Conway after that discussion. No written statements were obtained from any Rainier Steel, Inc. employees and no additional written statements were obtained from Conway Construction Company, INC employees.

On August 14 I was introduced to Wayne Frudd by Kevin Kromm. Frudd is the WSDOT Regional Safety and Health Manager for WSDOT. South Central Region. I told him I'd like to get a statement from Wilberto Otero regarding his observations before, during, and after the time of the fire's start and obtain copies of the photos Otero has on his cell phone. Frudd told me he would work with Otero and give me a statement and the photos by the end of the day. I also asked if I could obtain a copy of Otero's Inspector Daily Reports (IDRs), the contract for the bridge work, any work plans, safety plans, etc. that the agency might have relating to this particular contract. Frudd told me he would try to get those for me but thought I'd be best served getting them through a Public Disclosure Request. I told Frudd I'll file a Public Disclosure Request when I got back to Olympia for the additional items and thanked him in advance for getting Otero's statement and photos. At approximately 1200 hrs. I was called by Frudd and asked to meet him and Otero at WSDOT's "Bullfrog" complex to review the statement and obtain the photos. I met with them and obtained Otero's statement and the photos.<sup>29</sup>



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On August 15, 2012 at approximately 0700 hrs. I returned to the Bristol Fill Bridge Deck Replacement construction site to obtain more photographs and review the specific origin area prior to releasing the site. The site was unguarded but was ribboned off. On the evening of August 13, 2012 I informed Greg Ross that the area inside of the ribbon was off limits to anyone other than the fire investigators from the Department of Natural Resources and the Kittitas County Fire Marshal's Office. At that time Ross told me he already advised the employees on site to stay out of the ribboned area until the ribbon's removed. I recovered more ferrous metal from each of the points of origin and the specific origin. I released the general origin back to Conway Construction Company, INC at approximately 0800 hrs., removing the tape and other markers.

At approximately 1230 hrs. Bob Marshall, DNR Ellensburg Fire Forester met with Conway Construction Company, INC Superintendent Greg Ross to explain the Industrial Fire Precaution Level (IFPL) rules to him. Marshall told him by law the Washington State Department of Natural Resources is responsible for monitoring and assessing fire risk and enforcing the IFPL requirements. Ross was given an IFPL pocket card that contained the explanations of each level. Marshall explained to him that the Bristol Fill Bridge construction site was in Zone 675 and Zone 675 is at an Industrial Fire Precaution Level 3. Ross asked Marshall about the motor vehicles at the site, including the fork lift to which Marshall told him under the law as long as it was in good working order and maintained to factory specifications the equipment could be good to go.<sup>13</sup> I was not present with Marshall during this interview.

Marshall then told Roberto Otero, the WSDOT inspector on site the same thing he told Ross. He gave Otero his business card and told Otero to call him if he had any more questions about the IFPL.

At approximately 1357 hrs. Marshall received a call from the WSDOT Safety Manager, Wayne Frudd. Frudd wanted to meet with Marshall as soon as possible. Marshall agreed to meet with him later in the afternoon.

At approximately 1403 hrs. Conway Construction Company, INC Superintendent Greg Ross called Marshall and according to Marshall he was very concerned. Ross told Marshall he was instructed by WSDOT representatives to continue working on the project and ignore Marshall's visit and that the rules only applied to loggers. Ross told Marshall that the WSDOT told him the bridge was not in (DNR's) jurisdiction.

Later in the afternoon Marshall and DNR Law Enforcement Officer Gary Margheim met with WSDOT Safety Manager Wayne Frudd and Conway Construction Company, INC Superintendent Greg Ross at the construction site. Marshall told them DNR has responsibility for fire regulation, prevention and suppression on both private and state owned forest lands inside pre-designated Fire Protection Boundaries. He went on to explain these areas consist of forested lands, grass and brush lands adjacent to and intermingled with timber and shrub steppe areas on the east slopes of the Cascades. Marshall told them areas within the DNR protection boundaries are broken up into Districts, Local Units, IFPL and Fire Weather Zones. He said the bridge project in question is in (his) Ellensburg Unit and in IFPL Zone 675 adding that maps and information is accessible on the internet or at the Southeast Region's office.

According to Marshall, Ross said that he did follow Marshall's instructions that day and now knowing the IFPL law would comply completely from now on. DNR Law Enforcement Officer Gary Margheim told them there's also a need to have a person stay on site and perform one hour fire watch during those situations where the shutdown requires a fire watch.

According to Marshall WSDOT Safety Manager Wayne Frudd called him on August 16, 2012 and asked him for the procedures and (who) the person responsible for the implementation of the IFPL changes was. Marshall explained to Frudd how the rules were developed and how they're implemented. He referred Frudd to DNR South East Region Assistant Manager, Koshare Eagle.<sup>13 7</sup>

On August 19, 2012 at approximately 1000 hrs. DNR Law Enforcement Officer Gary Margheim, Natural Resources Engineer Tamra Zylstra and I arrived at the Bristol Fill Bridge Deck Replacement construction site to obtain coordinates and create a scene map of the general origin and points of origin.<sup>30</sup>

On August 20, 2012 I interviewed witness Ninon E. Wheatley regarding observations of the Taylor Bridge Fire made by her at approximately 1310 hours (08/13/2012). She told me she's the owner and operator of Rill Adventures, a river rafting business in Thorpe, WA and was returning to her home after leaving one of her company's launch sites along the Yakima River east of Cle Elum. She said she was travelling on Taylor Road approximately ½ mile northwest of the Taylor Road, Highway 10 intersection. She looked at her cell phone and noted the time was 1:10 p.m. She said as she travelled along Taylor Road towards Highway 10 she noticed some smoke on the west side of the Bristol Bridge that appeared to be blowing uphill from the bridge. She said she was at the Hart Rd. and Taylor Rd. intersection when she first saw the smoke. She thought it was someone using a barbecue at the bridge site and thought that was odd. As she continued towards the Highway 10 intersection she observed a lot more of the smoke blowing across Highway 10 in front of her. She said there were people working on the bridge as she drove past. As she drove past the bridge to the intersection of Taylor Road and Highway 10 she told me the smoke was much more intense, much thicker and heavier at the intersection. She said she realized the fire at the bridge was not a barbecue but actually a forest fire. She drove through the smoke that was crossing Highway 10 at the time and continued travelling east along the river on Highway 10. She could not tell if any of the construction workers were trying to put the fire out or not. I obtained a written statement from Ms. Wheatley.<sup>31</sup>

I attempted contact with the Burlington Northern Santa Fe Inspector who was observed on the tracks at the time the fire was observed by the construction workers to no avail. Dave Brown and Gary Margheim also told me they attempted contact with him to no avail as well.

On August 21, 2012 at approximately 1235 hrs. I interviewed witnesses Jessica J. Marcellus and Michael Karraker at their residence on Manastash Road in Ellensburg, WA. They told me on August 13, 2012 at approximately 1:10 p.m. they had gone to the Teanaway Bridge and launched their kayak on the Yakima River so they could float the river. At approximately 1315 hrs they were floating past the Taylor Bridge on Highway 10. As they passed the bridge site they saw a few small fires burning under the bridge. They estimated the fires to be approximately 4 feet in size each and were continuing to burn. Both of them observed a Burlington Northern pickup truck travelling past the area on the tracks. They said the truck stopped, watched the fire for a bit then proceeded east on the tracks away from the fire. They both thought it was a controlled burn because no one was running around looking panicked. They said a gust of wind took the fire from a few small burning areas to lighting a tree on fire and then jumping Highway 10. They said the fire was travelling north across Highway 10 and burning uphill. They realized the fire was not a controlled burn. When they reached their destination they contacted a DNR Fire Fighter who was on the fire to report what they'd witnessed. They left their contact information with him. After I discussed their observations with them they gave me a single statement that both of them signed.<sup>32</sup>

On August 22, 1545 hrs. the evidence I recovered at this fire was transported to and stored at the Washington State Department of Natural Resources Wildland Fire Evidence Storage Facility on Blomberg Road in Tumwater, Washington by me.

**Timeline:**

On 08/13/2012 at approximately:

- 0700 hrs. –WSDOT inspector Wilberto Otero arrives on site. Purcell painting crew, Rainier Steel INC and Conway Construction Company, INC were on site working. Rainier Steel was placing deck rebar and Patrick Freeburg, a welder for Conway Construction Company, INC was making repairs to the crossbeam bottom plates, welding those plates from the east side of the bridge to the west.<sup>33</sup>
- 1300 hrs. –Witness Brad Rorem observed a campfire sized fire burning below the bridge between the bridge and the railroad tracks from his cabin approximately ½ mile northeast of the construction site.<sup>9</sup>

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- 1310 hrs. –Witnesses Jessica Marcellus and Michael Karraker began floating on the Yakima River. Within 5 minutes of beginning their float trip they floated past the Taylor Bridge site and noticed a few small fires burning under the bridge.<sup>16</sup>

-Witness Ninon E. Wheately was driving on Taylor Rd. approaching the Taylor/Highway 10 intersection when she observed smoke blowing from the bridge construction site uphill, across Taylor road.

-She stated she continued down Taylor road towards the Taylor/Highway 10 intersection where she observed a lot more smoke blowing across Highway 10 than she'd previously seen. She drove through the smoke. It appeared to be blowing from the bridge site to the northeast and uphill, north of Highway 10.<sup>26</sup>

- 1319 hrs. Wilberto Otero, WSDOT Inspector reports the fire to KITTCOM via 911. Otero states *"Within 5 minutes of the fire started I called 911 to report the fire. The fire was about 15 feet in diameter when I called the fire department."*<sup>24, 29</sup>

- 1320 hrs. -Patrick Freeburg, Conway Construction Company, INC welder observed the fire and claimed it was approximately 15-20 feet in size.<sup>6</sup>

-Troy Andrew, Conway Construction Company, INC carpenter called Greg Ross, the Conway Construction Company, INC Superintendent for this contract. who was off site to report the fire to him.

-Wilberto Otero states he observed and photographed a brush fire on the Bristol Fill Bridge Deck Replacement construction site. (NOTE: The time the first photograph was taken by Otero was 1320 hrs. 08/13/2012 per Picture001's electronic log. That was after he reported the fire to KITTCOM CAD).<sup>34</sup>

-Dave Brown overheard a Kittitas County 911 dispatch of a fire located on Highway 10. He learned the fire was located at milepost 90, Highway 10.<sup>12</sup>

- 1330 hrs. - Approximately. Paul Wilson, Conway Construction Company, INC carpenter heard Patrick Freeburg, Conway Construction Company, INC welder shout "FIRE" and observed an approximately 10'x20' fire in the grass on the river side of the manlift.<sup>8</sup>

-Kittitas County Fire District 1 arrived on the scene shortly thereafter followed by Kittitas County Fire District 7. Reports flame lengths were exceeding 8 feet in length, winds were estimated to be westerly (down canyon) 5-10 miles per hour with gust to 15 miles per hour. Initial size up by the fire district units had the fire below Highway 10 and moving easterly. It was reported that the rural districts were having limited success keeping the fire below the highway.<sup>12</sup>

- 1345 hrs. DNR South East Alpine Fire Unit Forester (Dave Brown) reports DNR establishes an initial attack on the fire.<sup>12</sup>
- 1355 hrs. DNR South East Alpine Fire Unit Forester Brown provides size up of the fire to CWICC.<sup>35</sup>
- 1415 hrs. DNR South East Alpine Fire Unit Forester Brown states the fire "jumps across" State Highway 10 and burned with increasing size and intensity upslope, north, northeast and east away from the point of origin.<sup>12</sup>

On Friday, September 21, 2012 WSDOT representatives stated in a letter to Conway Construction Company INC president David Conway they "would hold the contractor to fire safety requirements at Taylor Bridge." WSDOT also

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stated “relevant contract specifications make Conway Construction responsible for overall site safety at the work site, especially regarding the risks of fire.”

From the letter<sup>36</sup>...

“WSDOT Construction Engineer Jeff Carpenter and Chief of Staff Steve Reinmuth informed Conway in the letter of its relevant responsibilities, including:

- The requirement to “know and observe all laws and rules (state or federal) on fire prevention...”
- The requirement to provide “adequate safeguards, safety devices, protective equipment, and any other needed actions to protect the life, health, and safety of the public, and to protect property in connection with the performance of the work covered by the contract.”
- The requirement to “protect private or public property on or in the vicinity of the work site. The contractor shall ensure that (private or public property) is not removed, damaged, destroyed, or prevented from being used... If the contractor (or agents/employees of the contractor) damage, destroy, or interfere with the use of such property, the contractor shall restore it to original condition.”
- The requirement to “always comply with all federal, state, tribal, or local laws, ordinances, and regulations that affect work under the contract... The contractor shall likewise be obligated to comply with all federal safety and health standards, codes, rules, and regulations that may be applicable to the contract work...”

**Weather:**

I obtained historical weather information from weather station **MPEFW1**, South Cle Elum, WA (47.152\* - 120.947\*) 4017’ elevation and from weather station **MTBULL**, Bullfrog, WA (47.182\* -121.031\*) 1984’ elevation. Peoh point is approximately 7 miles southwest of Taylor Bridge Fire’s origin and Bullfrog, WA is approximately 14 miles west of Taylor Bridge Fire’s origin.

The following information consists of excerpts from these two weather records for the period beginning 1120 hrs. through 1455 hrs., 08-13-12. The time relative to the fire’s ignition and subsequent spread is highlighted in yellow. The full day’s downloaded information is attached to this report.<sup>37</sup>

**History for MPEFW1: August 13, 2012**  
PEOH POINT, South Cle Elum

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<u>Time</u>	<u>Temp.</u>	<u>Dew Point</u>	<u>Pressure</u>	<u>Wind</u>	<u>Wind Speed</u>	<u>Wind Gust</u>	<u>Humidity</u>	<u>Rainfall Rate</u>
12:03	77.0 °F	38.0 °F	-100.00in	SSW	6.0mph	15.0mph	25%	0.00in / 0.00in total
12:46	79.0 °F	30.0 °F	-100.00in	WNW	6.0mph	19.0mph	17%	0.00in / 0.00in total
12:55	79.0 °F	30.0 °F	-100.00in	WNW	6.0mph	19.0mph	17%	0.00in / 0.00in total
13:03	79.0 °F	30.0 °F	-100.00in	WNW	6.0mph	19.0mph	17%	0.00in / 0.00in total
13:11	82.0 °F	28.0 °F	-100.00in	SSE	6.0mph	15.0mph	14%	0.00in / 0.00in total
13:46	82.0 °F	28.0 °F	-100.00in	SSE	6.0mph	15.0mph	14%	0.00in / 0.00in total

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13:55	82.0 °F	28.0 °F	-100.00in	SSE	6.0mph	15.0mph	14%	0.00in / 0.00in total
14:03	82.0 °F	28.0 °F	-100.00in	SSE	6.0mph	15.0mph	14%	0.00in / 0.00in total
14:11	84.0 °F	28.0 °F	-100.00in	WNW	6.0mph	19.0mph	13%	0.00in / 0.00in total
14:46	84.0 °F	28.0 °F	-100.00in	WNW	6.0mph	19.0mph	13%	0.00in / 0.00in total
14:55	84.0 °F	28.0 °F	-100.00in	WNW	6.0mph	19.0mph	13%	0.00in / 0.00in total

**History for MTBULL: August 13, 2012**  
 Bullfrog WA US WA DOT, Roslyn, WA

**12-E-CBX Taylor Bridge 221**

<u>Time</u>	<u>Temp.</u>	<u>Dew Point</u>	<u>Pressure</u>	<u>Wind</u>	<u>Wind Speed</u>	<u>Wind Gust</u>	<u>Humidity</u>	<u>Rainfall Rate</u>
11:20	83.0 °F	41.0 °F	-100.00in	WSW	12.0mph	20.0mph	22%	- / -99.99in total
12:04	83.0 °F	41.0 °F	-100.00in	WSW	12.0mph	20.0mph	22%	- / -99.99in total
12:14	83.0 °F	41.0 °F	-100.00in	WSW	12.0mph	20.0mph	22%	- / -99.99in total
12:20	85.0 °F	38.0 °F	-100.00in	WNW	10.0mph	23.0mph	18%	- / -99.99in total
13:03	85.0 °F	38.0 °F	-100.00in	WNW	10.0mph	23.0mph	18%	- / -99.99in total
13:13	85.0 °F	38.0 °F	-100.00in	WNW	10.0mph	23.0mph	18%	- / -99.99in total
13:20	86.0 °F	39.0 °F	-100.00in	West	10.0mph	24.0mph	19%	- / -99.99in total
14:04	86.0 °F	39.0 °F	-100.00in	West	10.0mph	24.0mph	19%	- / -99.99in total
14:13	86.0 °F	39.0 °F	-100.00in	West	10.0mph	24.0mph	19%	- / -99.99in total
14:20	87.0 °F	39.0 °F	-100.00in	West	14.0mph	27.0mph	18%	- / -99.99in total

Full weather details from both stations are attached to this report re: August 13, 2012.

I obtained a lightning display map for the Cle Elum Roslyn Hwy 10 area from the Wildland Fire Management Information (WMFI) website for the period beginning 08/06/2012 through 08/13/2012 (1459 hrs.). The results were 0 positive strikes and 0 negative strikes. No lightning was reported in the area.<sup>38</sup>

**PROPERTY AND EVIDENCE**

- E1 Ferrous metal from specific origin area
- E2 Paint Chips, debris from the general origin area
- E3 Fire extinguisher pull ring from general origin area
- E4 Ferrous metal from point of origin 01
- E5 Ferrous metal from point of origin 01
- E6 Ferrous metal from point of origin 02
- E7 Ferrous metal from point of origin 02
- E8 Two cigarette butts from construction road below bridge deck
- E9 1/2"x17.5" rebar piece from shoulder of Hwy 10/barrier

**Tumwater Canyon Fire Historical Information:**

Prior to addressing my findings regarding the Taylor Bridge Fire, I believe it would be prudent to include historical information regarding a 2011 fire similar to the Taylor Bridge Fire.

On August 17, 2011 at approximately 1340 hrs. an employee of Rock and Company, Brighton, Colorado a contractor working on “U.S. 2 W of Leavenworth slope stabilization” project caused a 458 acre wildland fire to occur in the Tumwater Canyon area of Zone 675.<sup>39</sup> The contractor’s employee had cut a “hung” steel drill bit with a hot saw to remove the portion of the bit above the ground. The superheated steel filings generated by the steel cutting activity landed in the receptive flashy fuels on site and ignited those fuels, resulting in the Tumwater Canyon Fire. The Industrial Fire Precaution Level was at 2 on that particular day. Additional precautions for IFPL2 includes that all welding or cutting of metal is prohibited after 1:00 p.m. therefore all cutting of metal was supposed to have ceased on site.

In addition, WSDOT included in their contract with Rock and Company, Brighton, Colorado an 8 page document<sup>40</sup> entitled “Pacific Northwest Region Fire Protection and Suppression” that identifies seven elements of fire protection and suppression. These elements include identifying 1. *Fire Period and Closed Season*, 2. *Fire Plan*, 3. *Substitute Measures*, 4. *Emergency Measures*, 5. *Fire Control*, 6. *Compliance with State Forest Laws* and 7. *Fire Precautions* which, among other useful information also identifies the Industrial Fire Precaution Levels and relevant requirements.

In particular, the provision requires the contractor to “prepare a fire plan in cooperation with the Contracting office providing for the prevention and control of fires in the project area.”

It also requires the contractor to “certify compliance with fire protection and suppression requirements before beginning operation during the fire period and closed season, and shall update such certification when operations change.”

It should be noted that the document included in the WSDOT contract with Rock and Company, Brighton, Colorado was not included in the WSDOT Bristol Fill Bridge Deck Replacement contract with Conway Construction Company INC. Both activities occurred in the same Industrial Zone (675). The Bristol Fill Bridge Deck Replacement activity occurred in WSDOT’s South Central Region headquartered in Yakima, WA while the Tumwater Canyon Slope Stabilization activity occurred in WSDOTs North Central Region, headquartered in Wenatchee, WA.<sup>41</sup>

However, per WSDOT Bristol Fill Bridge Deck Replacement contract with Conway Construction Company, INC the **2012 Standard Specifications for Road, Bridge, and Municipal Construction** should have been used.<sup>42</sup>

The following is an excerpt from the Washington State Department Of Transportation’s **2012 Standard Specifications for Road, Bridge, and Municipal Construction** manual.

On pages 1-42 of this manual the following specification is noted:<sup>43</sup>

***WSDOT Standard Specifications Manual (2012)***

***1-07.3 Forest Protection and Merchantable Timber Requirements***

***1-07.3(1) Forest Fire Prevention***

*When the Work is in or next to State or Federal forests, the Contractor shall know and observe all laws and rules (State or Federal) on fire prevention and sanitation. The Contractor shall ask the local forest supervisor or regional manager to outline requirements for permits, sanitation, firefighting equipment, and burning.*

*The Contractor shall take all reasonable precautions to prevent and suppress forest fires. In case of forest fire, the*

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*Contractor shall immediately notify the nearest forest headquarters of its exact site and shall make every effort to suppress it. If needed, the Contractor shall require his/her employees and those of any Subcontractor to work under forest officials in fire-control efforts.*

## **FINDINGS**

Subsequent to review of the information, evidence, facts and observations gathered or made during the course of this investigation, I determined the specific cause of this fire was most likely the result of steel sparks cast by a Stihl hot saw that was used to cut ½ inch rebar on the Bristol Bridge deck, State Highway 10 and/or by hot ferrous metal slag generated from welding activity on the top of piers 8 and 9 that fell into the receptive dry, flashy fuels below the Bristol Bridge deck on August 13, 2012 at approximately 1300 hrs. I was unable to wholly identify which activity caused the fire's starts; however, the distance from the points where the activities were taking place suggests to me that the cutting activity of the hot saw is the most likely cause of this fire.

Ferrous metals associated with both activities were recovered by me from both points of origin where the host fuel beds consisting of finely particulated materials were first ignited. They were also found within the specific and general origin areas. The average ignition temperature of forest fuels is approximately 500-600° F. The melting point of steel is approximately 2500-2750° F.<sup>44</sup> Welding is an activity that includes the melting of steel. Welding slag and metal filings generated from cutting are known to be competent ignition sources. Depending on their size and weight they are at times referred to as heavy ignition sources which after being cast away from the activity tend to settle or burrow under the materials first ignited and can smolder undetected for some time before subsequently igniting the fuels in the host fuel bed. Welding particles are found generally within 10 feet of the point of activity while cutting particles may be found in excess of 30 feet from the point of activity. The two points of origin where the ferrous metals were recovered are in excess of 30 feet from the point of activity.

The Stihl hot saw was reportedly being operated by a Rainier Steel Inc. employee who was not identified. I was told by Greg Ross that the hot saw was removed from the site when Rainier Steel INC left the scene shortly after the fire's start. Greg Ross added that any remaining rebar cutting was being completed with hand operated nippers. Several witnesses stated that the employee was cutting rebar on the bridge deck above the points of origin prior to the start of this fire.

The welding activity was being conducted by Patrick D. Freeman who was employed by Conway Construction Company, INC under the bridge deck at the top of pier 9 immediately prior to the fire's start above and approximately 33 feet north of the identified two points of origin of the fire where ferrous metals consistent with cutting and welding were recovered from.

There was no evidence that precautions were taken by either the contractor or subcontractor prior to the cutting and welding activity that could have prevented hot ferrous metals generated by the cutting and welding activities from being cast or falling into the fine, dried flashy forest fuels below the bridge deck and subsequently igniting them. In fact Greg Ross, Conway Construction Company, INC Superintendent told me no precautions were taken other than having the fire extinguishers and shovels on site. Further, according to Ross, to his knowledge none of the construction crew received training regarding how to fit the water truck that was on site with hoses that would make the truck capable of suppressing a fire.

There were two prior fires on site that were not reported to the Department of Natural Resources by Conway Construction Company, INC or WSDOT employees. Those two previous fires were suppressed by Conway Construction INC employees.

If they would have been reported to the Department of Natural Resources, DNR Fire Forester Bob Marshall states DNR procedure would have been to send a fire representative to the site of the fires, review the fires to ensure they're out and discuss necessary fire precautions with the individuals responsible for causing the fires to ensure they

will take preventive measures to avoid future fires. He also stated they would be given a “pocket card” citing the IFPLs and what’s appropriate on the various levels, would be subjected to a tool inspection if appropriate, and would be monitored for future compliance, if appropriate.<sup>45</sup>

The WSDOT Bristol Fill Bridge Deck Replacement contract is situated in Industrial Zone 675. The IFPL 3 referred to at the bridge site was for Industrial Zone 675 and was elevated to an IFPL 3 on August 09, 2012<sup>46</sup>.

The Industrial Fire Precaution Level (IFPL) for DNR Zone 675 was elevated to a level 3 on 08/09/2012 and remained there through the fire’s ignition (between 1300hrs and 1320 hrs.). Cutting and welding was occurring immediately prior to and shortly after the fire’s ignition. Cutting and welding occurred again on Tuesday, August 14, 2012 at approximately 1420 hrs. after the construction foreman was told to shut down any steel cutting and welding by Gary Margheim and I the previous evening. Bill Steele, Kittitas County Deputy Fire Marshal included his observations of the welding on August 14, 2012 in a supplemental report, attached.<sup>17</sup> Kevin Kromm also stated in his August 14<sup>th</sup> daily log that he was on the deck observing the foreman from Rainier Steel INC and a laborer with a chop saw cutting rebar around the bridge drain on the north side of the bridge in the vicinity of pier 3 and 4. He wrote in his log that the sparks were shooting 5 to 10 feet off of the deck.<sup>47</sup>

Pursuant to WAC 332-24-301 3,a,iii power saws and the welding or cutting of steel is prohibited after 1:00 p.m. on other industrial operations which may cause a fire to start on or adjacent to forest lands.

An employee of Conway Construction Company, INC. was welding and an employee of Rainier Steel Inc. was cutting ½ inch steel rebar on the south side of the bridge deck at pier 8-9 with a Stihl “hot saw” after 1300 hrs. on August 13, 2012.

#### **Elimination Of Causes:**

- **Lightning: Excluded.** There were no reported lightning strikes in the general area of Bristol Bridge/State Highway 10 over the period beginning 0001hrs. 08/06/12 through 1459 hrs. 08/13/2012
- **Campfires: Excluded.** Although there was a campfire ring located on the lower portion of the property immediately adjacent to the Railroad Right of Way the campfire ring did not have any recently burned material in it, was overgrown with dried grasses and had not burned as a result of this fire.
- **Debris Burning: Excluded.** There was no evidence of debris burning in the immediate area.
- **Children: Excluded.** I found no evidence of any recent activity that would suggest children had frequented the area. There were no forts, no toys, no matches, no candy wrappers or soda cans/bottles normally associated with children playing.
- **Smoking: Partially Excluded** I could not wholly rule out smoking as the cause of this fire. I recovered two cigarette butts from the bridge construction road that appeared to have been dropped to the ground by the smoker without having been extinguished. Cigarettes are very limited as a competent ignition source. They have a very narrow window of ignition factors. Although cigarettes have an exterior tip temperature factor of 572-1200 °F they tend to lift up and away from the fuel bed, the heat transfer is primarily conduction and radiation unless it’s suspended in the fuel and the linear progression of the burning cigarette limits the transfer of heat to the fuel to 1-2 minutes. In addition, the fuels need to be finely particulated in a loose fuel arrangement with fuel moistures normally less than 14% and with temperature in excess of 80 °F. Relative humidity typically needs to be 22% or less. Additionally, the physical placement of the cigarette needs greater than 30% of the glowing tip to be in contact with the fuel bed, the tip needs to be oriented into the wind and burrowed or facing downslope for the fuels to ignite. Trajectory testing supports a maximum throwing distance of approximately 20ft. The two points of origin were in excess of 30 feet from the edge of



the bridge deck. The weather at the time of the fire's suspected start was within the window of temperatures in excess of 80 °F and the relative humidity was less than 22%. Cigarettes will leave residue; however, I found no evidence of any cigarette butts, matches or other materials normally associated with smoking in the general origin, let alone the specific origin or points of origins.

- **Miscellaneous: Included** There was evidence of **steel welding and cutting** taking place on site and found within the general, specific and points of origins. Ferrous metal pieces were recovered in two points of origins and are consistent with those photographed on the concrete footings beneath the bridge, the construction road between the bridge and in the general and specific origins. The construction activity prior to and at the time of the fire's ignition included the welding and cutting of steel rebar and steel plates. A hot saw and a welder were used to cut or weld the steel above and immediately adjacent to the general and specific origins. There was no evidence or other information on the site that suggested a welder's blanket had been employed or that the ground had been dampened or any other precautions were employed prior to the activity taking place to prevent the start of a fire.

There were at least two previous fires on the Bristol Bridge construction site that were suppressed by the contractor's crews and not reported to DNR or the local fire district until after the Taylor Bridge Fire's ignition.

- **Equipment: Excluded** The only equipment adjacent to the general origin at the time was the man lift employed to raise and lower workers and equipment under the bridge deck. I did not recover any carbon particles or other evidence from the points of origin that would suggest the fire was caused by a malfunctioning or modified exhaust system. The equipment appeared to be in good working order.
- **Railroad: Excluded** Although there is an active Burlington Northern Santa Fe railroad adjacent to the construction site there were no reports of trains that passed through the area prior to the fire's start. There was a Burlington Northern pickup truck passing the site on the tracks after the fire had started but according to witnesses it did not contribute to the cause of the fire. Further, there was no evidence that could be associated with railroad activity recovered from the general, specific or points of origins.
- **Incendiary: Excluded** I did not recover any devices, chemicals, etc. from the two points of origin nor did I observe any fuel fuse lines, trailers, matches, etc. that are consistent with incendiary starts. There were a number of people present in the immediate area and of those interviewed none claimed to have seen any suspicious activity prior to the fire's start.

## **ATTACHMENTS**

- A1- Kittitas County Deputy Fire Marshal Bill Steele's Supplemental Report 3 pages
- A2- DNR LEO Gary Margheim's Supplemental Investigation Report and attachments 12 Pages
- A3- DNR INVF-T Josh Mattson's Supplemental Report 3 Pages
- A4- DNR Bob Marshall's Supplemental Investigation Report 3 Pages
- B1- Heryford photos and Photo Log01 3 pages
- B2- Heryford photos and Photo Log02 6 pages
- B3- Heryford photos and Photo Log03 5 pages
- B4- Heryford photos and Photo Log04 10 pages
- B5- Heryford photos and Photo Log05 5 pages
- B6- Heryford photos and Photo Log06 3 pages
- C- Off site weather information and lightning info 8 pages
- D- Copy of Evidence Control Log and Evidence Transmittals 10 pages
- E1- Brad Rorem Witness Statement 2 pages
- E2- Ninon Wheatley Witness Statement 2 pages

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E3- Jessica Marcellus and Michael Karraker Witness Statement 1 page  
E4- Paul Wilson Witness Statement 2 pages  
E5- Patrick Freeburg Witness Statement 1 page  
E6- WSDOT Inspector Wilberto Otero Witness Statement and photos 5 pages  
F1- General origin map with fire's directional burn indicators 1 page  
F2- General origin map, plan view, no directional burn indicators 1 page  
F3- General origin fire vector sketch  
F4- Taylor Bridge Survey RAW Data 5 pages  
F5- Taylor Bridge final fire/ownership map 2 maps  
F6- Taylor Bridge Photo Sketch 01 1 page  
F7- Taylor Bridge Photo Sketch 02 1 page  
F8- Taylor Bridge Photo Sketch 03 1 page  
F9- Taylor Bridge Photo Sketch 04 1 page  
F10- Taylor Bridge Photo Sketch 05 1 page  
F11- Taylor Bridge Photo Sketch 06 1 page  
F12- Taylor Bridge Photo Sketch 07 1 page  
G1- KITTCOM CAD Master Call Table 1 page  
G2- WildCAD Incident Card 16 pages  
H1- Kittitas County Assessor Immediate property ownership information 1 page  
H2- Kittitas County Assessor Parcel 421836 BNSF Railway Company 2 pages  
I- Property ownership information from WDOT records 39 pages  
J- Secretary Of State Corporations Search, Conway Construction Company, INC 4 pages  
K- Secretary Of State Corporations Search, Rainier Steel, Inc. 3 pages  
L- WSDOT Classified Position Description for Transportation Engineer 4 pages  
M- WSDOT Inspector's Daily Reports 6 pages  
N- WSDOT Engineer (Kevin Kromm) notes 9 pages  
O- Incident Number 348 Classified Fire Report-2012 completed by Dave Brown 5 pages  
P1- RCW 76.04.005 Definitions 2 pages  
P2- RCW 76.04.405 Steam, internal combustion, or electrical engines and other spark-emitting equipment regulated.1 page  
P3- RCW 76.04.445 Reports of fire 1 page  
P4- RCW 76.04.495 Negligent starting of fires or allowance of extreme fire hazard or debris-liability-recovery of reasonable expenses-lien 1 page  
P5- RCW 76.04.610 Forest fire protection assessment 2 pages  
P6- RCW 76.04.730 Negligent fire – spread  
P7- WAC 332-24-005 Definitions 4 pages  
P8- WAC 332-24-301 Industrial restrictions 2 pages  
P9- WAC 332-24-405 Spark emitting equipment requirements 4 pages  
Q- InciWeb Incident Information Taylor Bridge Fire information and final perimeter maps 4 pages  
R- Bob Marshall email re: "Report of Fire or Smoke" 1 page  
S- 2012 Standard Specifications Manual (WSDOT) Foreward and 1-07.3(1) Forest Protection and Merchantable Timber Requirements- Forest Fire Prevention. 2 pages  
T- InciWeb Tumwater Canyon Fire 2 pages  
U1- WSDOT contract insert regarding Fire Protection and Suppression 8 pages  
U2- WSDOT Region Boundary Map 1 Page  
V- "WSDOT holds contractor to fire-safety requirements at Taylor Bridge" letter dated Friday, September 21, 2012 2 pages  
W1- Historical IFPL 1 page  
W2- Questions and Answers 1 page  
W3- Incident Command Status Summary (ICS-209) 2 pages  
W4- Page 1-42, 1-43 WSDOT Standard Specifications Manual (2012) Specification 1-07.3 Forest Protection and

**INCIDENT NUMBER: 12-E-CBX**

**COUNTY: Kittitas**

Merchantable Timber Requirements, 1-07.3 (1) Forest Fire Prevention  
W5- "Contract Provisions and Plans for construction of SR10 MP 90.06 TO MP 90.22 Bristol Fill Bridge Deck Replacement" Contract and signature age. 3 Pages  
W6- Bristol Fill Bridge Deck Replacement Contract Provisions and Plans 8 pages  
W7- See Bristol Fill Bridge Deck Replacement Plans, Vicinity Map (page 2) and Paving and Pavement Markings (Page 7), 2 pages

| [See signature pages with signatures at the end of this report.](#)

**I certify that the information contained in the foregoing investigation report is true and accurate to the best of my knowledge.**

**Person Completing Report:** Dennis E. Heryford

Print Name

Sign Name

Date

**Action Needed:**

**Action Taken:**

**Select all that apply:**

☐ Open ☐ Closed ☐ Follow up by DNR Resource Protection Division ☐ Region/Division (Administrative) ☐ Other

**Supervisor/Reviewer:**

Print Name

Sign Name

Date

**DEPARTMENT OF NATURAL RESOURCES**  
**Resource Protection Division**  
**1111 Washington Street SE**  
**Olympia, WA 98504-7037**  
**360-902-1326**

<sup>1</sup> See Contract Provisions and Plans, Contract signature pages, See attachment W5

<sup>2</sup> See Corporation information, Secretary of State, See Attachment J

<sup>3</sup> Bristol Bridge, the historical name of this particular bridge is also known locally as "Taylor Bridge". The name "Bristol Bridge" will be referred to when referring to the bridge in this report. The fire will continue to be referred to as the "Taylor Bridge Fire"

<sup>4</sup> Parcel No. 421836, BNSF Railway Company. Kittitas County Assessor's Records. See attachment H2.

<sup>5</sup> See Taylor Bridge General origin map, Taylor Bridge General Origin Map Plan View, Taylor Bridge Fire Progression Sketch See attachments F1, F2, F3

<sup>6</sup> WAC332-24-301 Industrial Restrictions . See attachment P8

<sup>7</sup> See Otero statement and photos, See attachments E6

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- 8 See Freeburg statement, See attachment E5
- 9 See L.E.O. Margheim's Supplemental Report, See attachment A2.
- 10 See Paul Wilson statement, See attachment E4
- 11 See Brad Rorem statement See attachment E1
- 12 See Tamra Zylstra's Taylor Bridge Fire General Origin Map and Plain View Map See attachments F1 and F2
- 13 Taylor Bridge Fire(TAYLORDBRIDGE.TRV information, See attachment F4
- 14 Classified Fire Report authored by Dave Brown, See attachment O
- 15 Supplemental Investigation Report authored by Bob Marshall, See attachment A4
- 16 Supplemental Investigation Report authored by Gary Margheim, See attachment A2
- 17 Supplemental Investigation Report authored by Josh Mattson, See attachment A3
- 18 Joint statement of Jessica Marcellus and Michael Karraker, See attachment E3
- 19 Deputy Fire Marshal Bill Steele's Kittitas County Fire Investigation Supplemental Report, See attachment A1.
- 20 See Washington State Department of Transportation Contract No. 8261 "Contract Provisions and Plans", Bristol Fill Bridge Deck Replacement, Kittitas County, MP 90.06 to MP 90.22. Document is available from WSDOT.
- 21 See Bristol Fill Bridge Deck Replacement Plans, Vicinity Map (page 2) and Paving and Pavement Markings (Page 7), Attachments W7
- 22 Kittitas County Parcel Report re: Parcels No. 421836, 954812, 19271 and 265834. See attachments H1-H5
- 23 Email from Bob Marshall regarding Washington State Department of Natural Resources FFPA records for parcels #421836, #954812, #19271 and #265834, See attachment H6
- 24 See Incident Status Command (ICS-209), Attachment W3
- 25 See photo log 01. See attachment B1
- 26 See WSDOT Kromm's Bristol Fill Bridge Deck Replacement notes. See attachment N
- 27 See Fire Progression Sketch. See attachment F3 "Previous Fires" on sketch.
- 28 Photo Log 04 12-E-CBX. See Photos DSC03837a and DSC03848a. These photos were taken by Dennis E. Heryford on 08/16/2012 between 1043 hrs. and 1322 hrs. They depict the burned and shoveled areas of two previous fires. A silt barrier was put in place after the fires occurred to prevent silt runoff. See attachment B4
- 29 WSDOT Inspector Wilberto Otero Witness Statement and photos, See attachment E6
- 30 See Zylstra's "Taylor Bridge Fire General Origin Map Plan View", See attachment F2
- 31 See Ninon Wheatley's statement, See attachment E2
- 32 See Jessica Marcellus and Michael Karraker witness statement, See attachment E3
- 33 WSDOT Inspector Wilberto Otero's Daily Reports for the Bristol Fill Bridge Deck Replacement Contract No. 8261. See attachment M
- 34 KITTCOM CAD Master Call Table Page 1, See attachment G1
- 35 See CWICC Wildcad Incident Card, Page 3 Entry 5 See attachment G2
- 36 See "WSDOT holds contractor to fire-safety requirements at Taylor Bridge" letter dated Friday, September 21, 2012, See attachment V
- 37 See Offsite weather information and lightning information See attachments C1, C2, C3
- 38 See WMFI Lightning Display Map: Taylor Bridge, See attachment C3
- 39 See InciWeb Tumwater Canyon incident update, See attachment T
- 40 USFS Pacific Northwest Region Fire Protection and Suppression insert into WSDOT contract with Rock and Company, Brighton, Colorado, See attachment U1
- 41 See Washington State Department of Transportation Region boundaries, See attachment U2
- 42 See Washington State Department of Transportation Contract No. 8261 "Contract Provisions and Plans", Bristol Fill Bridge Deck Replacement, Kittitas County, MP 90.06 to MP 90.22, **INTRODUCTION** page 1, paragraph 1, See Attachment W7
- 43 See Page 1-42, WSDOT Standard Specifications Manual (2012) Specification 1-07.3 Forest Protection and Merchantable Timber Requirements, in particular 1-07.3 (1) Forest Fire Prevention, See attachment S
- 44 Questions And Answers, What's the melting point of steel? See attachment W2
- 45 See Bob Marshall email regarding "Report of Fire or Smoke", October 26, 2012, See attachment R
- 46 See Historical IFPLs 08/01/2012 through 08/31/2012, Zone 675, See attachment W1

**INCIDENT NUMBER: 12-E-CBX**

**COUNTY: Kittitas**

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<sup>47</sup> See Kromm August 14, 2012 Daily Log, See attachment N

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Merchantable Timber Requirements, 1-07.3 (1) Forest Fire Prevention  
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I certify that the information contained in the foregoing investigation report is true and accurate to the best of my knowledge.

Person Completing Report:

Dennis E. Heryford

Print Name

Sign Name

Date

12/17/12

Action Needed:

Action Taken:

Select all that apply:

☐ Open ☐ Closed ☐ Follow up by DNR Resource Protection Division ☐ Region/Division (Administrative) ☐ Other

Supervisor/Reviewer:

Print Name

Sign Name

Date

DEPARTMENT OF NATURAL RESOURCES  
Resource Protection Division  
1111 Washington Street SE  
Olympia, WA 98504-7037  
360-902-1326

- <sup>1</sup> See Contract Provisions and Plans, Contract signature pages, See attachment W5
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- <sup>7</sup> See Otero statement and photos, See attachments E6

INCIDENT NUMBER: 12-E-CBX

COUNTY: Kittitas

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I certify that the information contained in the foregoing investigation report is true and accurate to the best of my knowledge.

Person Completing Report:

Dennis E. Heryford

Print Name

Sign Name

Date

Action Needed:

Action Taken:

Select all that apply:

☐ Open ☐ Closed ☐ Follow up by DNR Resource Protection Division ☐ Region/Division (Administrative) ☐ Other

Supervisor/Reviewer:

Todd Welker

Print Name

Sign Name

Date

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